REMARKS

By the present amendment, independent claims 1, 7 and 10 as well as dependent claim 8 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. Entry of these amendments is respectfully requested.

In the Action, claims 7-10 were rejected under the first paragraph of 35 USC § 112 as failing to comply with the written description requirement. Specifically, it was alleged that the phrase in claims 7 and 10 regarding the SiC substrate having a first upper surface opposite to a second upper surface was not supported by the specification and drawings as filed. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

As mentioned above, claims 7 and 10 have been amended herein to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. Claim7 is amended to recite "a SiC substrate having a lower surface and an upper surface, the lower surface being opposite to the upper surface." The "lower surface" is shown in Fig. 3B as the "surface 1a," and the "upper surface" is shown in Fig. 3B as the "surface 1b." In Fig. 3B, the "surface 1a" is shown to be opposite to the "surface 1b."

Thus, the limitation, "a SiC substrate having a lower surface and an upper surface, the lower surface being opposite to the upper surface," is supported by the figure. Moreover, it is made clear how the "lower surface" is opposite to the "upper surface." Therefore, claim 7 meets the requirements of 35 U.S.C. 112.

Further, Applicant notes the statement, "It is not clear what a first and a second upper surface means" as set forth on page three of the second paragraph of the Office Action. It is submitted that claim 10 has been misunderstood. The alleged language, "a first and a second upper surface," is absent in claim 10.

Moreover, claim 10 has been amended to recite "a SiC substrate having a lower surface and an upper surface, the lower surface being opposite to the upper surface." As noted above, this amendment clarifies how the lower surface is opposite to the upper surface. Thus, it is submitted that claim 10 meets the requirements of 35 U.S.C. 112.

Consequently, it is submitted that the claims are now in full conformity with the provisions of the cited statute. Accordingly, withdrawal of the rejection under the first paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 7-10 were rejected under the second paragraph of 35 USC § 112 as being indefinite. Specifically, it was alleged that several phrases in claims 7 and 10 were indefinite; claim 9 contained a phrase apparently lacking in antecedent basis; and claim 10 included a phrase which was indefinite. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

As mentioned above, claims 7 and 10 have been amended herein to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. It is submitted that the

claims are now in full conformity with the provisions of the cited statute. Accordingly, withdrawal of the rejection under the second paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 1 and 7-8 were rejected as being unpatentable over the publication to Arik et al (US 2005/0006754). Reconsideration of this rejection in view of the above claim amendments and the following comments is requested.

Applicant submits that the claims as amended patentably distinguish over the cited publication to Arik et al. In this regard, particular attention is directed to amended claim 1 which requires, in part, "the first hole is ***completely filled with*** the bundle of carbon nanotubes of the heat conductor." (Emphasis added).

It is submited that the position taken in the Office Action was that microchannel 214 of the publication to Arik et al corresponds to the claimed first hole as is set forth on page three, last paragraph of the Action. It was further suggested in the Office Action that nanotubes 240 of the publication to Arik et al correspond to the claimed carbon nanotubes as is set forth on page four of the Action.

The publication to Arik et al teaches that the microchannels 214 connect the fluid reservoirs 210, 210. The publication to Arik et al also teaches recirculating cooling system 30, in which working fluid flows in the direction of the arrows in Fig. 7 as is described in paragraph 0057. In this paragraph, the working fluid is taught as being water, a dielectric fluid, oil, or the like. As shown in Fig. 7, the working fluid flows through the alleged microchannels 214. The fluid is used to promote heat transfer from the sub-mount 202 as is set forth in paragraph 0058.

The basic concept of the microchannel 214 is, thus, understood as a channel that allows the working fluid to flow therethrough for the purpose of promoting heat transfer from the sub-mount 202.

However, if the microchannel 214 were to be ***completely filled with*** the nanotubes 240, the working fluid could not flow through the microchannel 214. Thus, the heat transfer from the sub-mount 202 could not be promoted, and the device according to the Arik et al publication would not operate efficiently. In order to make the device to operate, microchannel 214 should not be completely filled with the nanotubes 240.

In contrast, what is required in claim 1 is "the first hole is ***completely filled with*** the bundle of carbon nanotubes of the heat conductor." As noted above this feature cannot be obtained from the publication to Arik et al because, if the microchannel 214 were to be completely filled with the nanotubes 240, the device of the publication to Arik et al could not operate.

Claim 7 also distinguishes over the Arik et al publication in the same manner described above.

In conclusion, it is respectfully requested that the examiner reconsider the above art rejection and allow the claims as amended which distinguish over the teachings of the cited Arik et al publication. Accordingly, withdrawal of the rejection under 35 U.S.C. §102 (b) and §103(a) and allowance of claims 1, 7 and 8 as amended over the cited Arik et al publication are respectfully requested.

Applicants again acknowledge with appreciation the indication that claims 2-6 would be allowable if rewritten to include all the limitations of the base claim.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

KRATZ, QUINTOS & HANSON, LLP

Donald W. Hanson
Attorney for Applicants
Reg. No. 27,133

DWH/evb

Atty. Docket No. **040102**
Suite 400, 1420 K Street, N.W.
Washington, D.C. 20005
(202) 659-2930

23850
PATENT TRADEMARK OFFICE

Enclosure: Petition for Extension of Time